

CLAIMS

Therefore, having thus described the invention, at least the following is claimed:

1 1. A method for providing automated diagnostic services for a cluster
2 computer system comprising a plurality of nodes, each of the plurality of nodes
3 providing an application to a plurality of clients, the method comprising the steps of:
4 receiving information related to a plurality of drives associated with the
5 plurality of nodes in the cluster computer system, the drives defining one or more
6 logical volume groups;

7 determining whether the drives conform to a predefined condition related to
8 failover capability based on the information related to the drives, such that the one or
9 more logical volume groups transition in the event of a failover; and
10 providing a warning if the drives do not conform to the predefined condition.

1 2. The method of claim 1, wherein the step of receiving information
2 related to a plurality of drives and the step of providing a warning are via a
3 communications network.

1 3. The method of claim 1, wherein the step of receiving information
2 related to a plurality of drives and the step of providing a warning are performed
3 within the cluster computer system.

1 4. The method of claim 1, wherein the step of determining whether the
2 drives conform to a predefined condition comprises determining whether the drives
3 are unique.

1 5. The method of claim 1, wherein the step of determining whether the
2 drives conform to a predefined condition comprises determining whether a plurality of
3 drive paths are valid.

1 6. The method of claim 1, wherein the step of determining whether the
2 drives conform to a predefined condition comprises determining whether the one or
3 more logical volume groups conform to a predetermined logical volume management
4 condition.

1 7. The method of claim 6, wherein the step of determining whether the
2 one or more logical volume groups conform to a predetermined logical volume
3 management condition comprises determining whether the logical volume numbers
4 within the one or more logical volume groups are numbered sequentially.

1 8. The method of claim 1, further comprising the steps:
2 determining which of the plurality of drives are shared drives;
3 initiating a read/write test on the shared drives.

1 9. The method of claim 8, wherein the step of initiating a read/write test
2 involves a nondestructively bounded pseudo random read/write test.

1 10. The method of claim 8, further comprising the step of providing a
2 warning if one of the shared drives fails the read/write test.

1 11. The method of claim 10, further comprising the step of determining
2 whether each of the plurality of nodes in the cluster computer system can access the
3 shared drives.

1 12. The method of claim 11, further comprising the step of providing a
2 warning if one of the plurality of nodes in the cluster computer system cannot access
3 one of the shared drives.

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1 13. A computer program for providing automated diagnostic services for a
2 cluster computer system comprising a plurality of nodes, each of the plurality of nodes
3 providing an application to a plurality of clients, the computer program comprising:
4 a first portion of logic configured to receive information related to a plurality
5 of drives associated with the plurality of nodes in the cluster computer system, the
6 drives defining one or more logical volume groups;
7 a second portion of logic configured to determine, based on the information
8 related to the drives, whether the drives conform to a predefined condition related to
9 failover capability such that the one or more logical volume groups transition in the
10 event of a failover; and
11 a third portion of logic configured to provide a warning if the drives do not
12 conform to the predefined condition.

1 14. The computer program of claim 13, wherein the first portion of logic is
2 further configured receive the information related to a plurality of drives via a
3 communications network and the third portion of logic is further configured to
4 provide the warning via the communications network.

1 15. The computer program of claim 13, wherein the first, second, and third
2 portions of logic are embodied in cluster middleware controlling the cluster computer
3 system.

1 16. The computer program of claim 13, wherein the first, second, and third
2 portions of logic are embodied in an operating system associated with each of the
3 plurality of nodes.

1 17. The computer program of claim 13, wherein the second portion of
2 logic is further configured determine whether the drives are unique.

1 18. The computer program of claim 13, wherein the second portion of
2 logic is further configured to determine whether a plurality of drive paths are valid.

1 19. The computer program of claim 13, wherein the second portion of
2 logic is further configured to determine whether the one or more logical volume
3 groups conform to a predetermined logical volume management condition.

1 20. The computer program of claim 19, wherein the second portion of
2 logic is further configured to determine whether the logical volume numbers within
3 the one or more logical volume groups are numbered sequentially.

1 21. The computer program of claim 13, further comprising:
2 a fourth portion of logic configured to determine which of the plurality
3 of drives are shared drives;
4 a fifth portion of logic configured to initiate a read/write test on the
5 shared drives.

1 22. The computer program of claim 21, wherein the read/write test is a
2 nondestructively bounded pseudo random read/write test.

1 23. The computer program of claim 21, further comprising a sixth portion
2 of logic configured to provide a warning if one of the shared drives fails the read/write
3 test.

1 24. The computer program of claim 23, further comprising a seventh
2 portion of logic configured to determine whether each of the plurality of nodes in
3 cluster computer system can access the shared drives.

1 25. The computer program of claim 24, further comprising an eighth
2 portion of logic configured to provide a warning if one of the plurality of nodes in the
3 cluster computer system cannot access one of the shared drives.

1 26. A system for providing automated diagnostic services for a cluster
2 computer system comprising a plurality of nodes, each of the plurality of nodes
3 providing an application to a plurality of clients, the system comprising:
4 means for receiving information related to a plurality of drives associated with
5 the plurality of nodes in the cluster computer system, the drives defining one or more
6 logical volume groups;
7 means for determining, based on the information related to the drives, whether
8 the drives conform to a predefined condition related to failover capability such that the
9 one or more logical volume groups transition in the event of a failover; and
10 means for providing a warning if the drives do not conform to the predefined
11 condition.

1 27. The system of claim 26, further comprising:
2 means for determining which of the plurality of drives are shared
3 drives;
4 means for initiating a read/write test on the shared drives.

1 28. The system of claim 27, wherein the read/write test involves a
2 nondestructively bounded pseudo random read/write test.

1 29. The system of claim 27, further comprising a means for providing a
2 warning if one of the shared drives fails the read/write test.

1 30. The system of claim 29, further comprising a means for determining
2 whether each of the plurality of nodes in the cluster computer system can access the
3 shared drives.

1 31. The system of claim 30, further comprising a means for providing a
2 warning if one of the plurality of nodes in the cluster computer system cannot access
3 one of the shared drives.

1 32. A system for providing automated diagnostic services for a cluster
2 computer system, the system comprising a computer having logic configured to:
3 receive information related to a plurality of drives associated with a plurality
4 of nodes in the cluster computer system, the drives defining one or more logical
5 volume groups;
6 determine, based on the information related to the drives, whether the drives
7 conform to a predefined condition related to failover capability such that the one or
8 more logical volume groups transition in the event of a failover; and
9 provide a warning if the drives do not conform to the predefined condition.

1 33. The system of claim 32, wherein the computer is a server.

1 34. The system of claim 32, wherein the logic is embodied in an operating
2 system associated with the computer.

1 35. The system of claim 32, wherein the logic is embodied in cluster
2 middleware associated with the computer.

1 36. The system of claim 32, wherein the computer further comprises a
2 network interface card configured to communicate with a cluster interface.

1 37. The system of claim 36, further comprising one or more clients in
2 communication with the one or more computers via the cluster interface.

1 38. The system of claim 32, wherein the computer further comprises a
2 network interface configured to communicate with the cluster computer system via a
3 communications network and wherein the information related to a plurality of drives
4 is received via the communications network and the warning is provided to the cluster
5 computer system via the communications network.

1 39. The system of claim 32, wherein the logic is further configured to
2 determine whether a plurality of drive paths are valid.

1 40. The system of claim 32, wherein the logic is further configured to
2 determine whether the one or more logical volume groups conform to a predetermined
3 logical volume management condition.

1 41. The system of claim 32, wherein the logic is further configured to
2 determine whether the logical volume numbers within the one or more logical volume
3 groups are numbered sequentially.

1 42. The system of claim 32, wherein the logic is further configured to:
2 determine which of the plurality of drives are shared drives; and
3 initiate a read/write test on the shared drives.

1 43. The system of claim 42, wherein the logic is configured to provide a
2 warning if one of the shared drives fails the read/write test.

1 44. The system of claim 43, wherein the logic is further configured to
2 determine whether each of the plurality of nodes in the cluster computer system can
3 access the shared drives.

1 45. The system of claim 44, wherein the logic is further configured to
2 provide a warning if one of the plurality of nodes in the cluster computer system
3 cannot access one of the shared drives.